

ENVIRONMENTAL REQUIREMENTS FOR UTILITY WORK WITHIN MDOT RIGHT OF WAY

These requirements are strictly enforced, and failure to comply with them *may* result in a stop work order and revocation of your permit with the Michigan Department of Transportation (MDOT).

1. Goemare-Anderson Wetland Protection Act, Part 303, P.A. 451 of 1994

Any new utility activities that involve excavation or fill within a regulated wetland requires a Michigan Department of Environmental Quality (MDEQ) permit. Regulated wetlands are those systems that are contiguous to a lake or stream (within 500 feet) or greater than five (5) acres in size.

The following activities are exempt under the Wetlands Protection Act:

- a. The maintenance, repair, or operation of gas or oil pipelines and construction of gas or oil pipelines having an outside diameter of 6.75 inches or less.
- b. The maintenance, repair, or operation of electric transmission and distribution power lines and construction of distribution power lines. Distribution power lines are underground lines below 30 kV and lines supported by wood poles.

2. Inland Lakes and Streams Act, Part 301, P.A. 451 of 1994

Any activity within the ordinary high-water mark of a regulated body of water, i.e., lake, stream, drain, pond, etc., shall require a permit. There are no exemptions to this requirement. Permit applications and questions can be submitted to the MDEQ's Land and Water Management Division.

3. Soil Erosion and Sedimentation Control Act, Part 91, P.A. 451 1994

Any land disturbance of one (1) acre or greater or within 500 feet of a lake or stream requires a soil erosion permit. Municipal Utilities who are classified as an Authorized Public Agency (APA) are exempt from permits, but must follow proper soil erosion practices as identified in their standard plan. Utility construction activity within MDOT right of way is not covered under MDOT's APA authority, since there is no departmental preliminary review of soil erosion controls prior to construction or inspection during construction.

Soil erosion and sedimentation controls are required on all projects, permitted or not. Individuals performing work shall prevent sediment from entering any body of water or leaving the right of way. Permits can be obtained from the county/municipal agencies. Pole installation, service lines, and other earth changes of a minor nature are exempt from this act as normal maintenance and emergency repairs.

4. Clean Water Act: National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Requirements for Construction Activities

Any land disturbance of five (5) acres or greater requires an NPDES Storm Water Discharge Permit. This can include any filling, excavating, grading, clearing, etc. Municipally-owned utilities who service a population of less than 100,000 are exempt from permit provisions, but not from environmental protection requirements. Permit applications require Part 31, P.A. 451 permit number or a declaration of APA status and the effective date. Permit applications and questions can be submitted to the MDEQ's Surface Water Quality Division.

5. Environmental Site Closures

A procedure was developed by the MDEQ and MDOT that *may* allow a property owner, who is responsible for of these sites can be addressed to MDOT's Real Estate Division's Environmental Specialist at 517-335-2271.

6. The Land and Water Management Division of the MDEQ also administers the following environmental laws which *may* require review prior to construction:

- Sand Dune Protection Act, Part 353, P.A. 451 of 1994.
- Shore-lands Protection and Management, Part 323, P.A. 451 of 1994.
- Great Lakes Submerged Lands Act, Part 325, P.A. 451 of 1994.

7. The Wildlife Division of the MDNR also administers the following environmental laws which *may* require review prior to construction:

- Endangered Species Act, Part 365, P.A. 451 of 1994.

Questions regarding these permits may be addressed to the nearest MDEQ district field office or their Land and Water Management Division at 517-373-1170.

GENERAL CONDITIONS

This permit is issued subject to the following conditions:

1. This permit grants to the permittee only those rights specifically stated and no other. Maintenance work within the trunkline right of way may require a separate permit unless authorized within the scope of the annual permit.
2. Issuance of this permit does not relieve permittee from meeting any and all requirements of law, or of other public bodies or agencies. The permittee shall be responsible for securing including but not limited to any other permissions including or required by law including but not limited to cities, villages, townships, corporations, or individuals for the activities hereby permitted.
3. The permittee agrees as a condition of this permit to:
 - a. Have in the permittee's or the permittee's representative's possession on the job site at all times the approved permit, advanced notice and any necessary plans or sketches.
 - b. Submit form 2204 (Advance Notice and Approval of Permitted Activities) to the Departments at least five (5) working days prior to commencement of any operations covered by this permit. No work shall start until an approved copy of form 2204 is returned to permittee.
 - c. Perform no work except emergency work, unless authorized by the Department, on Saturdays, Sundays, or from 3:00 p.m. on the day proceeding until the normal starting time the day after the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.
 - d. Provide and maintain all necessary precautions to prevent injury or damage to persons and property from operations covered by this permit.
 - e. Furnish, install and maintain all necessary traffic controls and protection during permittee's operations in accordance with the Michigan Manual of Uniform Traffic Control Devices and any supplemental specifications set forth herein.
 - f. Advise the Department within seven (7) days of completion of work authorized by this permit, so that final inspection may be made and surety deposit released (where applicable). Surety deposit will not be released until the work authorized by the permit has been completed and inspected, and all inspection charges billable to the permittee are paid.
4. Nothing in this permit shall be construed to grant any rights what so ever to any public utilities, except as to the consent herein specifically given, nor to impair any existing rights granted in accordance with the constitution or laws of this state.
5. Any operations in the trunkline right of way not covered by permit and the appropriate Department specifications are in violation of the jurisdictional authority of the Department, with respect to the control of the trunkline right of way, unless approved by the Department. Any change or alteration in the permit activities requires prior approval of the Department and may require a new permit.
6. Performance of the requirements of this permit is the responsibility of the permittee. The permittee shall complete all operations for which this permit is issued in accordance with the conditions of this permit, by the specified completion date. The permittee shall meet all requirements of the current Department Standard Specifications for Construction, and the Supplemental Specifications set forth on/or incorporated as a part of this permit.
7. The construction, operation and maintenance of the facility covered by this permit shall be performed without cost to the Department unless specified herein. The permittee shall be responsible for the cost of restoration of the state trunkline and right of way determined by the Department to be damaged as a result of the activities of the permittee.
8. Facilities allowed on state trunkline right of way shall be placed and maintained in a manner which will not impair the state trunkline or interfere with the reasonable safe and free flow of traffic. Failure of the permittee to maintain the facilities located within the State trunkline right of way so as not to interfere with the operation, maintenance or use of the state trunkline by the traveling public may result in revocation of the permit.
9. The permittee is solely and fully responsible for all activities undertaken pursuant to the permit. Any and all actions by the Department and those governmental bodies performing permit activities for the Department pursuant to a maintenance contract, including but not limited to any approved reviews and inspections of any nature, permit issuing, and final acceptance or rejection of the work or activity authorized by the permit shall not be construed as a warranty or assumption of liability on the part of the Department or those governmental bodies. It is expressly understood and agreed that any such actions are for the sole and exclusive purposes of the Department and the governmental bodies acting in a governmental capacity. Any such actions by the Department and governmental bodies will not relieve the permittee of its obligations hereunder, nor are such actions by the Department and the governmental bodies to be construed as a warranty as to the propriety of the permittee's performance. The permittee shall indemnify and save harmless the State of Michigan, Michigan Transportation Commission, the Department and all officers, agents and employees thereof, and those governmental bodies performing permit activities for the Department and all officers, agents and employees thereof, pursuant to a maintenance contract, against any and all claims for damages arising from operations covered by this permit except claims resulting from the sole negligence or unwillful acts or omissions of said indemnities, its agent, or employees. In addition, permittee upon request shall furnish proof of insurance coverage for the term of this permit in an amount pre-specified.
10. This permit is not assignable and not transferable unless specifically agreed to by the Department.
11. The permittee, upon request of the Department, shall immediately remove, cease operations, and surrender this permit, or alter or relocate, at the permittee's own expense, the facility for which this permit is granted. Upon failure to do so, the Department may take any necessary action to protect the trunkline interest and the permittee shall reimburse the Department for its costs in doing same. The permittee expressly waives any right to claim damages or compensation in the event this permit is revoked.
12. The permittee shall, upon request by the Department, furnish a performance surety deposit in the form of a bond, cash, certified check, or (when authorized by the Department) an irrevocable letter of credit in such amount as deemed necessary by the Department to guarantee restoration of the trunkline highway or performance under the conditions of the permit.

MDOT 2205B (07/10)

13. The permittee hereby acknowledges and agrees that the Department has the right to demand completion by the permittee, or the performance surety, or to complete any uncompleted activity authorized by this permit which adversely affects the operation and/or maintenance of the state trunkline highway, or which is not completed by the expiration date of the permit, including:

- a. Completion of construction of driveway and/or approach (not authorized by annual permit).
- b. Removal of materials.
- c. Restoration of the trunkline facilities and right of way as necessary for the reasonably safe and efficient operations of the trunkline highway.

The permittee further agrees to immediately reimburse the Department in full for all such costs incurred by the Department upon receipt of billing, and that upon failure to pay, the Department may effect payment with the performance surety deposit. Should the surety deposit be insufficient to cover expenses incurred by the Department, the permittee shall pay such deficiency upon billing by the Department. If the surety deposit exceeds the expense incurred by the Department, any excess will be returned or released to the depositor upon completion of the work to the satisfaction of the Department.

14. The Department reserves the right during the time any or all of the work is being performed to assign an inspector to protect the trunkline interest, and to charge the permittee all such costs incurred. In addition, the permittee may be billed any engineering and review fees incurred by the Department or its agent in connection with the work covered by this permit.
15. Emergency Operations: In time of disaster or emergency, or when utility lines or facilities are so damaged as to constitute a danger to life and/or property of the public, access to the same may be had by the most expeditious route. Work is to be completed in a manner which will provide the traveling public with maximum possible safety and minimize traffic distribution. Notice of such situations shall be given to the nearest police authority and the department as soon as can reasonably be done under the circumstances. During normal Department work hours, the facility owner shall advise the Department of any operations within right of way which affect traffic operations or the highway structure or facilities prior to performance of the work. After normal Department work hours, the permittee, at the beginning of the first working day after the emergency operation, shall advise the Department of any operations which affect traffic operations or the highway structures and facilities. If determined necessary by the Department, the permittee shall secure an individual permit for such work after notification.
16. Upon the Department's request, as built drawings of work performed will be furnished to the Department within 30 days after completion of the work.
17. The permittee shall give notice to public utilities in accordance with Act 53, P.A. of 1974, as amended, and comply with all applicable requirements of this act. The permittee shall also comply with requirements of Act 347, P.A. of 1972, as amended, controlling soil erosion and sedimentation.

18. The permittee acknowledges that the Department is without liability for the presence of the permittee's facility which is located within the trunkline right of way. Acceptance by the Department of work performed, and/or notice of termination of performance obligations for the surety and/or the permittee do not relieve the permittee of full responsibility for the permittee's work or for the presence of the permittee's facility in the trunkline right of way.
19. Where the Department has accepted an Indemnification Commitment in lieu of bond and/or insurance policies, such commitment is incorporated into this permit by reference.
20. It is illegal to discharge substances other than storm water into the Department's storm sewer system unless permission has been obtained in writing for other discharges.
21. The permittee shall be responsible for obtaining information on permitted environmental site closures within MDOT right of way. MDOT has implemented a program that allows environmental contamination to remain within the right of way by use of a permit. Issued permit information can be obtained from the Region/TSC in which the permit is issued. If the permittee will encounter a site area identified as a site closure permit area, the permittee shall follow instructions and conditions set forth in Supplemental Specifications #3 and specifications found in form 2205-C, "Special Conditions for Underground Construction".

SUPPLEMENTAL SPECIFICATIONS

1. Construction and Maintenance of Facilities – To construct and maintain utility crossings of limited access highways, access for the utility's service vehicles may be from county roads, service roads, and openings authorized in limited access right of way fences. The construction of utilities across limited access highways should be for the purpose of serving a general area rather than providing individual services, unless extenuating circumstances necessitate such crossings.

Equipment, vehicles or personnel will not operate within a distance of 30 feet from the edge of the pavement of roadways or ramps on limited access highways. At locations where utilities have been constructed in medians having a width greater than 80 feet or have otherwise been allowed to remain or to be constructed in limited access right of way, ingress and egress shall be by such routes as specified by the Department, which may also specify additional safety provisions.

2. Restoration- Restoration of the trunkline highway and right of way will be such that it will provide a condition equal to or better than the original condition, in accordance with Michigan Department of Transportation Standard Specifications.
3. Excavation and Disposal of Excavated Material – The permittee shall provide and place the necessary sheeting, shoring and bracing required to prevent caving, loss or settlement of foundation material supporting the pavement, or any other highway installation such as sewers, culverts, etc. The permittee shall assume the full responsibility for this protection and shall not proceed in these areas before approval of the methods by the Department.

Construction equipment and excavating material shall not be stocked in such locations that it creates a traffic hazard or interferes with the flow of traffic; and on limited access highways, shall be a minimum of 30 feet from the traveled way. Sod and topsoil shall be stacked separately from other excavated material. The permittee shall dispose of all surplus and unsuitable material outside of the limits of the highway, unless the permit provides for disposal at approved locations within right of way. In the latter case, the material shall be leveled and trimmed in an approved manner.

When the permittee is excavating within trunkline right of way and discovers existing contaminated soil and/or an abandoned underground storage tank, special permit specifications entitled "Special Conditions for Underground Construction" (Form 2205-C) shall apply.

4. Utility Cuts, Trenches and Pavement Replacement – Utility crossing by pavement cutting and removal are generally prohibited. If extenuating circumstances make tunneling, boring and jacking impractical pavement cutting may be used with approval of the Department. All utility cuts, trenching and pavement replacement shall comply with the requirements of the Standard Specifications and the Standard Plan "Utility Cuts, Trenches and Pavement Replacement". Unless otherwise specified, cuts in concrete residential and commercial drives shall be as above; except that the patch width shall be a minimum of 3 feet and the remaining slab from patch to existing joint shall be a minimum of 3 feet. Backfill shall be made with sand-gravel as specified in the Standard Specifications, unless otherwise directed. After the backfill has been placed and compacted by controlled density method, the pavement shall be replaced with new pavement of the original type and quality, unless at the season of the year when it is not feasible to replace pavement in kind. In this case, a temporary surface of bituminous material shall be placed with Department approval and later replaced with pavement of the original type at the applicant's expense. Other pavement types may be allowed with prior approval of the Department.

5. Crossing Roadbed by Tunneling or Boring and Jacking – All crossing of roadbed operations involving tunneling, boring and jacking shall comply with the Department's special provisions for such work.
6. Backfilling and Compacting Backfill – Unless otherwise specified, all trenches, holes and pits shall be filled with sound earth or with sand-gravel if so provided, placed in successive layers not more than 9 inches in depth, loose measure, and each layer shall be thoroughly compacted by tamping. All backfill compaction will be subject to check by the controlled density method.
7. Depth of Cover Method- Unless otherwise authorized, pipes shall be placed to a depth that will provide not less than 4 feet of cover between the top of the roadway surface and the pipe, 3 feet cover below the ditch line and the pipe.
8. Trees:
 - a. The permittee is responsible for obtaining permission from abutting owners when trimming or removing trees on easement right of way.
 - b. Tree removal or trimming may be undertaken only after submission of an "Advance Notice of Permitted Activity"-Tree Trimming/Removal" (form 2215), a field review by the Region Resource Specialist and a written approved copy of the advanced notice returned to the permittee.
 - c. Limbs, logs, stumps and litter shall be disposed of in a manner acceptable to the Department.
 - d. Tree roots shall be bored a distance of one foot for each one inch of trunk diameter for underground utility installations
9. Aerial Wire Crossings – Vertical clearance of wires, conductors and cables over state trunkline shall not be less than required by Section 232 of the National Electrical Safety Code, except in no case shall the under-clearance below any wire, conductor, or cable, under any temperature or loading condition, be less than eighteen feet (18').

Warning Signs

- The minimum size of all diamond shaped warning signs is 48" x 48".
- Reflectorized signing is required.
- All warning signs may be equipped with an orange or day-glo flag mounted above the sign.
- Type A warning lights will not be required with the use of roll-up signs.
- The “**advance signing sequence**” consists of three signs; ROAD WORK AHEAD (W20-1), INJURE/KILL WORKER (R5-18b) and TRAFFIC FINES DOUBLED (R5-18). Refer to pages A48 & A49 for proper signing sequence.

Sign Spacing – “D” Distances

The spacing between signs is based upon the permanently posted roadway speed. The sign spacing distances are minimums and may be adjusted to meet changing roadway and traffic conditions.

Table 1. Sign Spacing ("D" Distances)

Speed* (mph)	"D" Distance (ft.)	Speed* (mph)	"D" Distance (ft.)
25	250	50	500
30	300	55	550
35	350	60	600
40	400	65	650
45	450	70	700

*Posted speed prior to work zone

Tapers – “L” Lengths

Whenever tapers are to be used near interchange ramps, crossroads, curves, or other influencing factors, it may be necessary to adjust the length of tapers, or extend the tangent section of the lane closure so the taper can be established in advance of these factors. Recommended minimum values for taper lengths, “L”, are shown in Table 2.

Table 2. Taper Lengths

Taper Length, L (ft)		Posted Speed Limit, mph (Prior to Work Zone)									
		25	30	35	40	45	50	55	60	65	70
Offset / Lane Width (ft)	8	83	120	163	213	360	400	440	480	520	560
	9	94	135	184	240	405	450	495	540	585	630
	10	104	150	204	267	450	500	550	600	650	700
	11	115	165	225	293	495	550	605	660	715	770
	12	125	180	245	320	540	600	660	720	780	840
	13	135	195	266	347	585	650	715	780	845	910
	14	146	210	286	374	630	700	770	840	910	980
	15	157	225	307	400	675	750	825	900	975	1050

Cone and Drum Spacing for Channelization

Spacing of channelizing devices, in feet, along the taper should not exceed the posted speed in miles per hour and twice the posted speed in the parallel area (e.g., a 45 mph posted speed road should normally have devices spaced no greater than 45 ft apart along the taper and 90 ft in the parallel section). Cones or drums on a tangent, to keep traffic out of the closed lane, should be spaced in accordance with the extent and type of activity, the speed limit of the roadway, and the vertical and horizontal alignment of the roadway.

Buffer Space

Buffer Space is a feature that separates traffic flow from the work activity. No equipment, materials or vehicles shall be stored in the buffer space. The shadow vehicle, if used, must be placed beyond the longitudinal buffer space.

Table 3. Buffer Space Length for Posted Speeds

Speed* (mph)	Buffer Length (ft)	Speed* (mph)	Buffer Length (ft)
20	33	50	279
25	50	55	329
30	83	60	411
35	132	65	476
40	181	70	542
45	230		

*Posted speed prior to work zone

Shadow Vehicle

A shadow vehicle should be used for lane closures on all roadways which have 45 mph or greater posted speeds and two or more lanes in each direction.

A shadow vehicle may be used in other work zones as deemed necessary. Factors to be considered in determining need include the following:

- Time of day of the closure
- Seasonal variations in traffic volume
- Length of lane closure and anticipated duration
- Traffic speeds
- Frequency of traffic stopping/turning movements

The shadow vehicle should be a loaded truck having 23,000 GVWR or greater with the brakes set, front wheels turned away from traffic and parked at the beginning of the roll-ahead space.

The roll-ahead space is the space between the shadow vehicle and the work area. This additional space is needed only when a shadow vehicle is used.

NOTES

NO SIGNS ARE REQUIRED IF DURATION IS SHORT-DURATION OR MOBILE.

IF THE OPERATION HAS A VEHICLE(S) PARKED ON THE SHOULDER, OR VEHICLES ACCESSING THE WORK SITE VIA THE HIGHWAY OR CROSSING THE HIGHWAY TO PERFORM OPERATIONS, A "ROAD WORK AHEAD" SIGN OR AN ARROW BOARD IN BAR MODE SHALL BE USED.

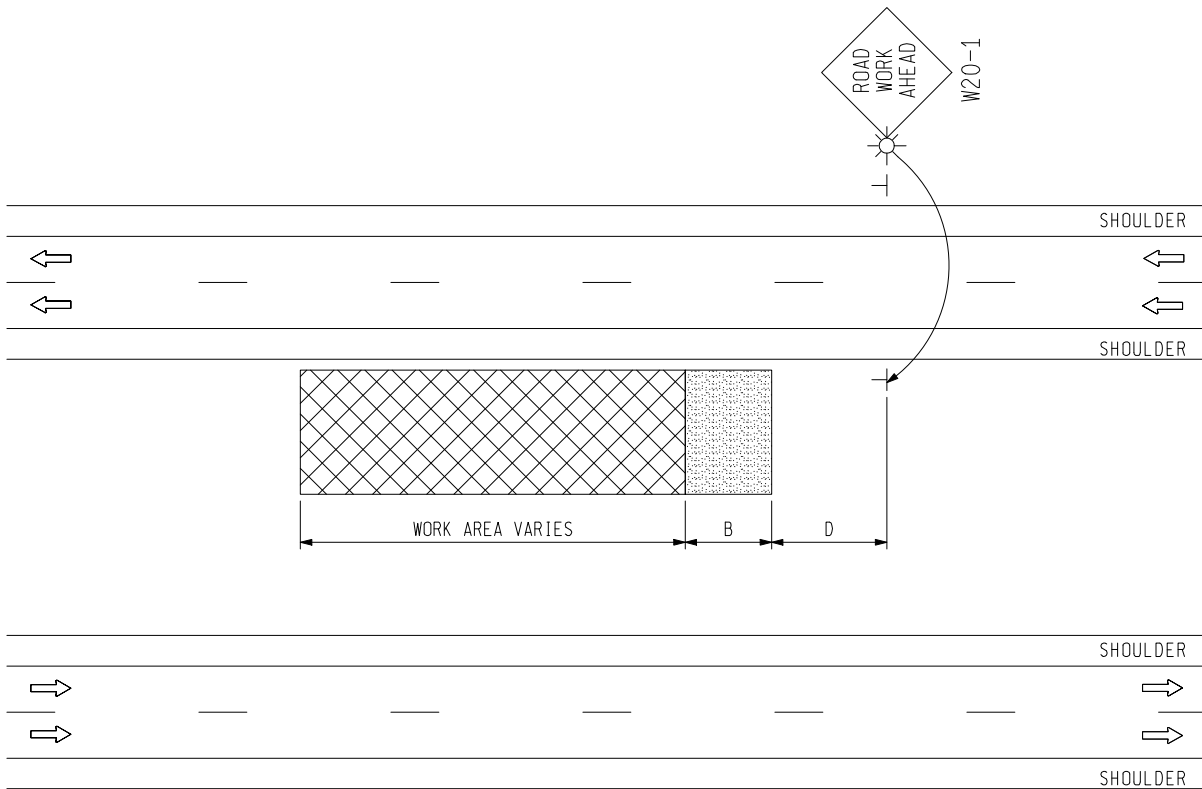
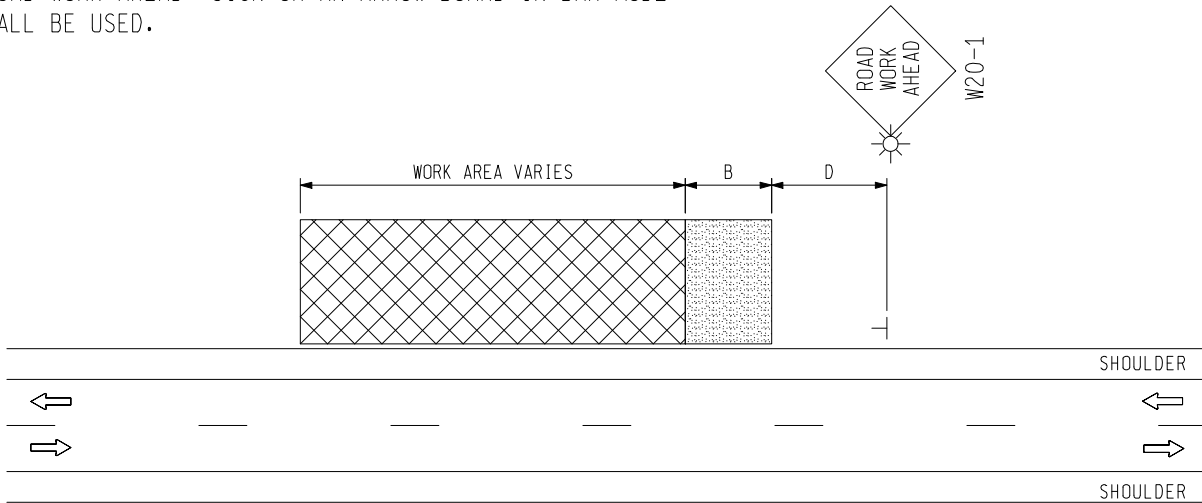
KEY



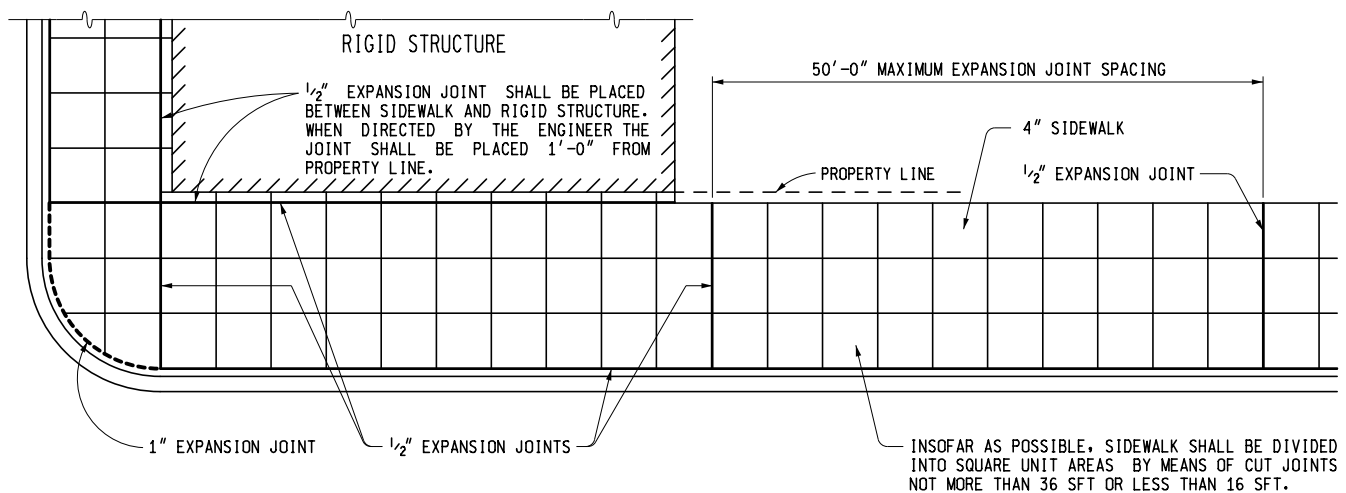
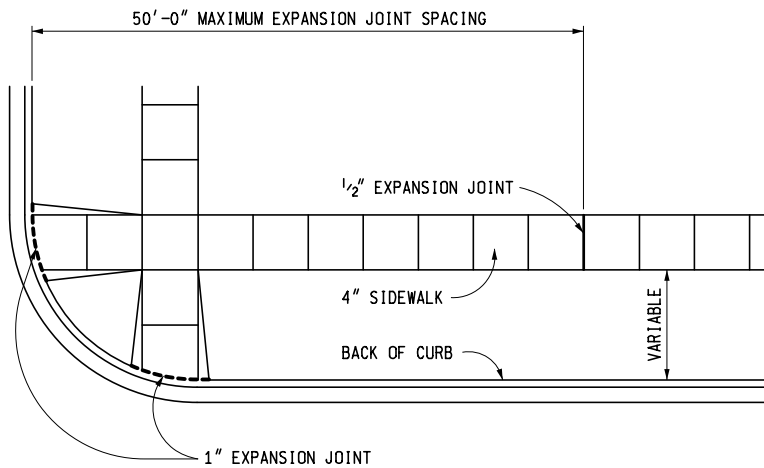
TYPE A WARNING FLASHER
(REQUIRED ON PLYWOOD SIGNS)



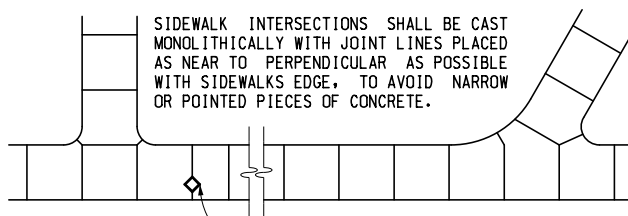
TRAFFIC FLOW



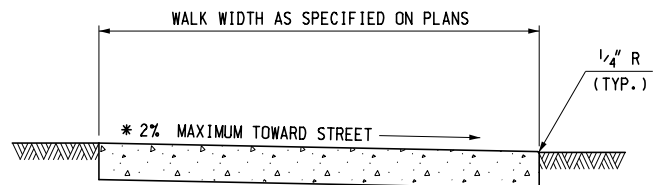
NOT TO SCALE



LOCATION OF JOINTS IN CONCRETE SIDEWALK



WHERE A PERMANENT STRUCTURE IS LOCATED IN SIDEWALK, PLACE EXPANSION MATERIAL AROUND STRUCTURE AND ADJUST JOINT PATTERN TO INTERSECT STRUCTURE AS ILLUSTRATED.



* SEE NOTES

TYPICAL SIDEWALK JOINT LAYOUTS

4" CONCRETE SIDEWALK



PREPARED
BY
DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Stedle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

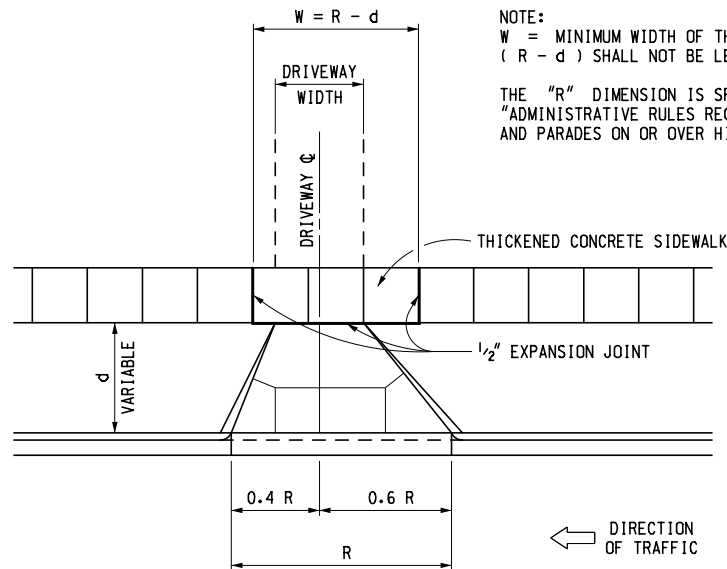
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK

F.H.W.A. APPROVAL

10-20-2011
PLAN DATE

R-29-H

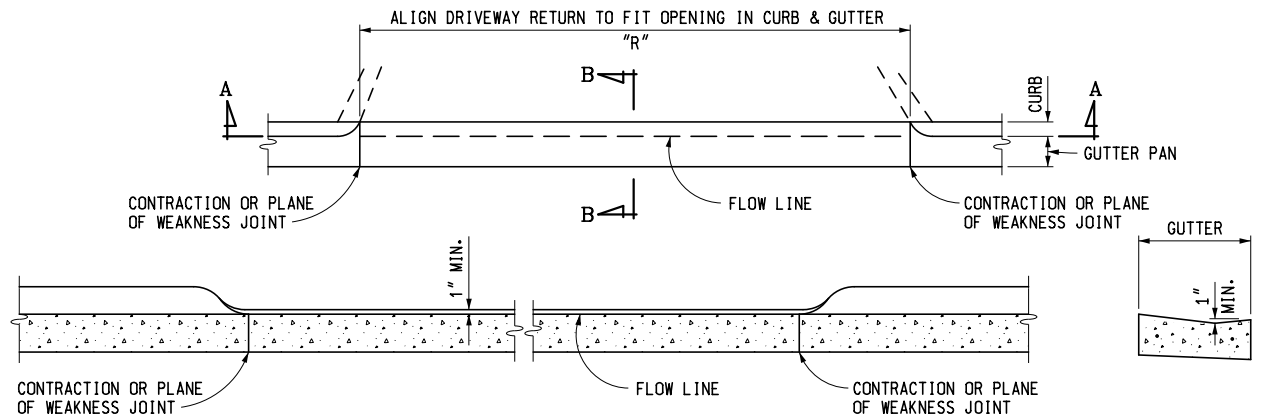
SHEET
1 OF 4



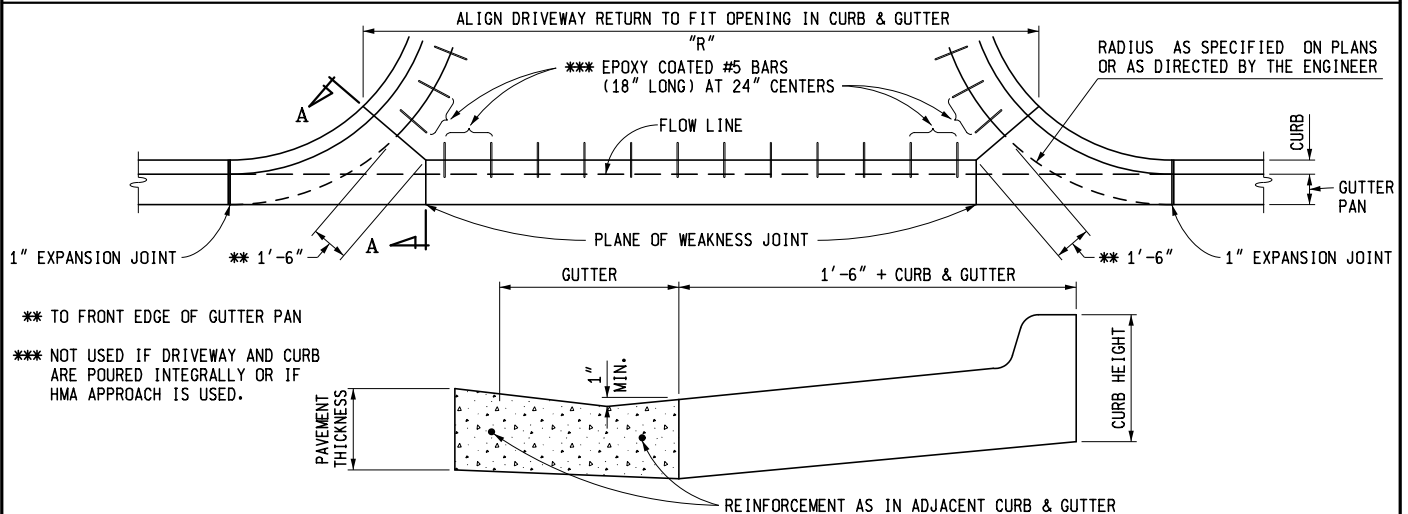
NOTE:
 W = MINIMUM WIDTH OF THICKENED CONCRETE SIDEWALK.
 $(R - d)$ SHALL NOT BE LESS THAN DRIVEWAY WIDTH.

THE "R" DIMENSION IS SPECIFIED IN THE PUBLICATION
 "ADMINISTRATIVE RULES REGULATING DRIVEWAYS, BANNERS
 AND PARADES ON OR OVER HIGHWAYS".

CONCRETE DRIVEWAY OPENING LAYOUT



SECTION A - A
 CONCRETE DRIVEWAY OPENING, DETAIL L



SECTION A - A
 CONCRETE DRIVEWAY OPENING, DETAIL M

NOTE:
 FOR ROADWAYS WITH CONCRETE PAVEMENTS, LONGITUDINAL LANE TIES WILL
 BE CONTINUOUS THROUGH THE DRIVEWAY OPENING AND THE SPACING OF THE
 #5 BARS IN CONCRETE DRIVEWAYS SHALL BE ADJUSTED TO AVOID CONFLICT
 WITH THE LONGITUDINAL LANE TIES.

MICHIGAN DEPARTMENT OF TRANSPORTATION
 BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

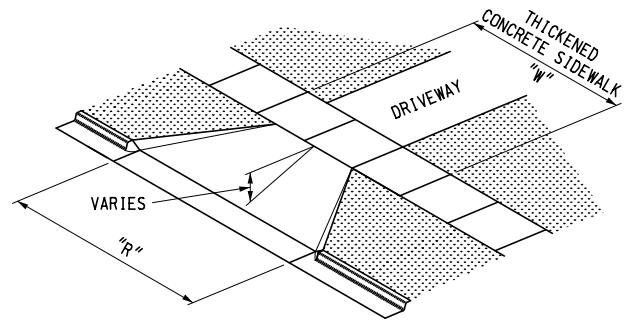
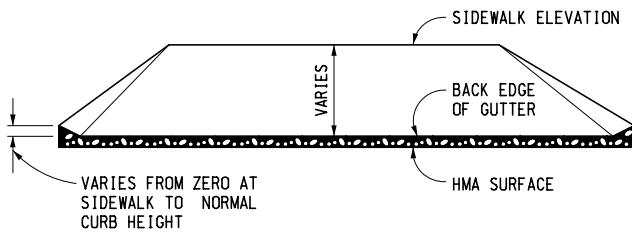
DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK

F.H.W.A. APPROVAL

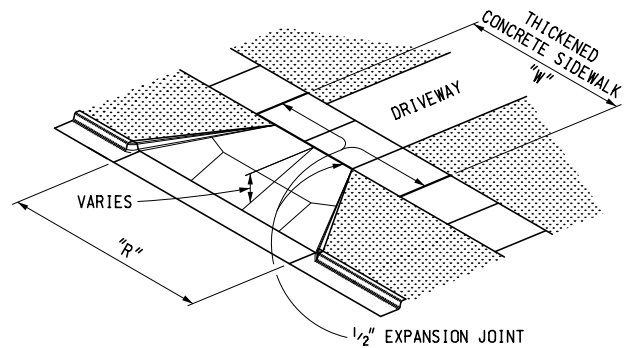
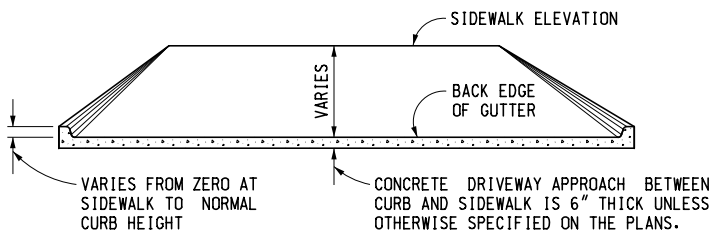
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 PLAN DATE

R-29-H

SHEET
 2 OF 4



HMA DRIVEWAY APPROACH (TO BE USED WITH DETAIL L)

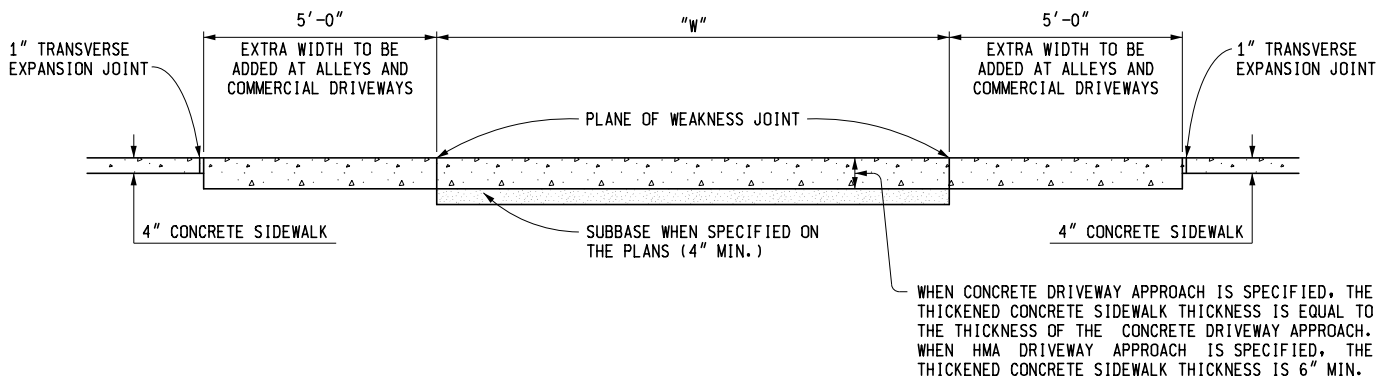


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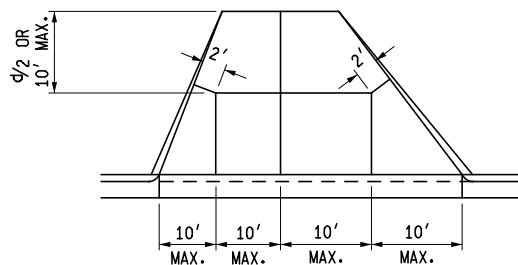
MONOLITHIC CURB IS INCLUDED IN THE CONCRETE DRIVEWAY APPROACH QUANTITY.

REINFORCEMENT IS NOT REQUIRED UNLESS SPECIFIED ON THE PLANS. WHEN REINFORCEMENT IS SPECIFIED, SEE CHART ON THIS SHEET.

CONCRETE DRIVEWAY APPROACH (TO BE USED WITH DETAIL L OR M)



THICKENED CONCRETE SIDEWALK



USE "W" JOINTS IF DRIVEWAY AND CURB ARE POURED MONOLITHICALLY OR "B" JOINTS IF THEY ARE POURED IN STAGES.

ADJUST DRIVEWAY JOINTS AS NEEDED TO ALIGN WITH ANY COINCIDING TRANSVERSE PAVEMENT JOINTS.

JOINT LAYOUT IS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

DRIVEWAY JOINT DETAILS

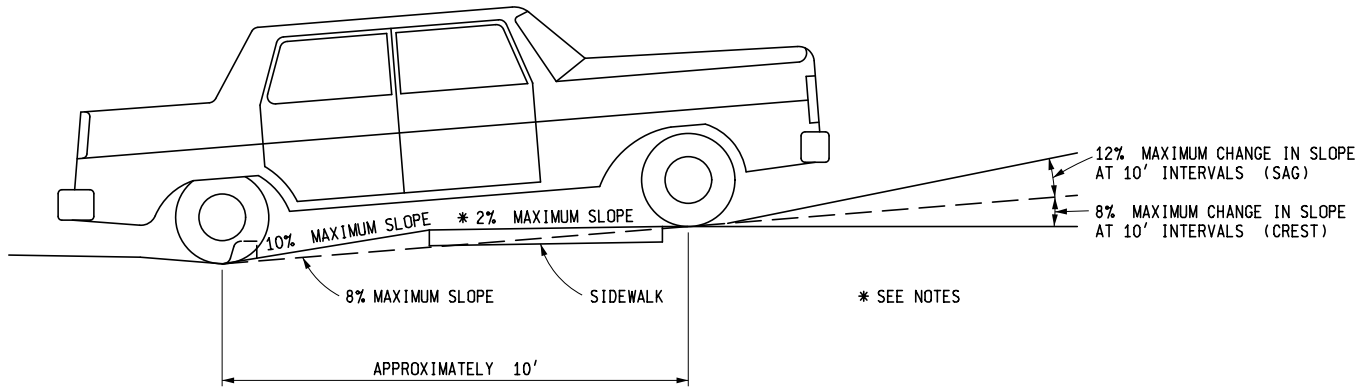
REINFORCEMENT FOR CONCRETE DRIVEWAYS

CONCRETE DRIVEWAY THICKNESS	WIRE SIZE (6" x 6" MESH)	AVERAGE WEIGHT (LBS/100 SFT)
LESS THAN 8"	W1.4	21
	W2.9	42
8" OR GREATER	USE WIRE FABRIC REINFORCEMENT SPECIFIED ON STANDARD PLAN R-37-SERIES	

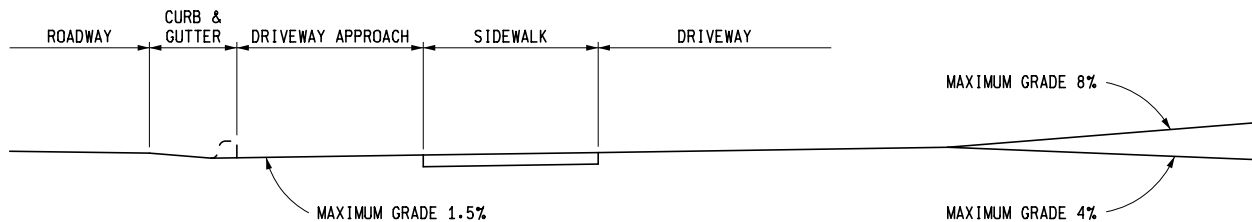
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK

F.H.W.A. APPROVAL	10-20-2011 PLAN DATE	R-29-H	SHEET 3 OF 4
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LOW VOLUME COMMERCIAL OR RESIDENTIAL DRIVEWAY SLOPES



COMMERCIAL DRIVEWAY PROFILE FOR MAJOR TRAFFIC GENERATORS

NOTES:

FOR DRIVEWAY DESIGN REFER ALSO TO "ADMINISTRATIVE RULES REGULATING DRIVEWAYS, BANNERS, AND PARADES ON OR OVER HIGHWAYS" AND GEOMETRIC DESIGN G-680-SERIES, COMMERCIAL DRIVEWAYS.

FOR CURB AND GUTTER DETAILS, SEE STANDARD PLAN R-30-SERIES.

TRANSVERSE SIDEWALK SLOPES ARE TYPICALLY 1.5% OR 2% MAXIMUM. IN ORDER TO MEET SITE CONDITIONS, IF THE TRANSVERSE SLOPE IS REQUIRED TO BE LESS THAN 1.5%, LONGITUDINAL DRAINAGE MUST BE PROVIDED.

WHEN SETTING GRADES FOR COMMERCIAL DRIVES, THE TYPES OF VEHICLES USING THE DRIVE SHOULD BE CONSIDERED.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

DRIVEWAY OPENINGS & APPROACHES, AND CONCRETE SIDEWALK

F.H.W.A. APPROVAL

10-20-2011
PLAN DATE

R-29-H

SHEET
4 OF 4

Special Permit Conditions for Restoration

The permittee's work operation shall be in accordance with Section 208, "Soil Erosion and Sedimentation Control", of the 2012 Michigan Department of Transportation, (MDOT), Standard Specifications for construction and any other applicable local soil erosion prevention requirements.

Restoration of the project shall commence immediately upon installation of the utility or structure. Restoration shall be in keeping with Section 816, "Turf Establishment", of the 2012 MDOT Standard Specifications for Construction.

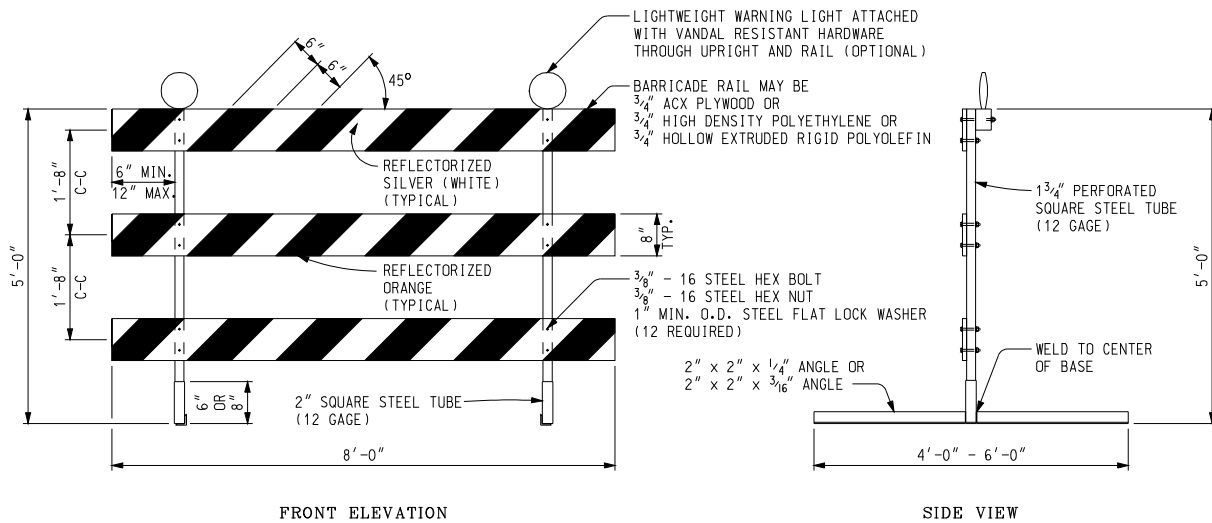
The application rates for restoration, as found in Section 816, shall be replaced with the following minimums:

1. Three inch minimum topsoil surface, clean and evenly graded.
2. 220 lbs. per acre roadside seeding.
3. 228 lbs. per acre chemical fertilizer nutrient.
4. Two tons per acre mulch and anchoring.
5. Slopes greater than 1 on 3 shall be restored with straw mulch blankets.
6. Ditch bottoms from zero to 2% longitudinal slope shall be restored with straw mulch blankets to a height of 1.5 ft. above flow line.
7. Ditch bottoms with greater than 2% longitudinal slope shall be restored with mulch blankets designed for high velocity flow and properly anchored.

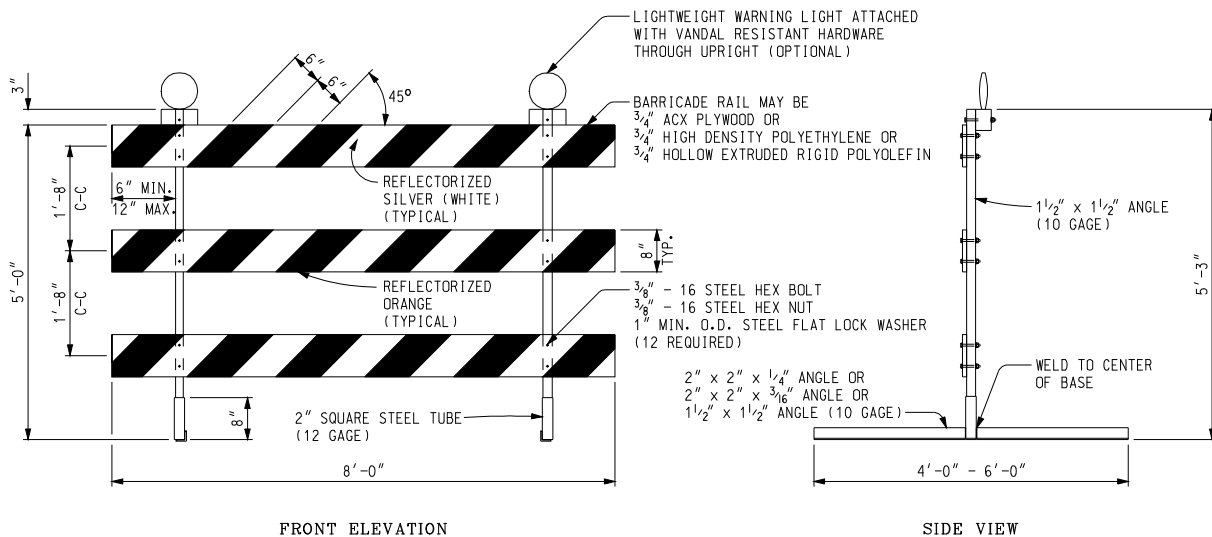
The permittee shall abide by the seasonal limitations for permanent seeding of April 15 through October 10. Restoration completed after October 10 shall be evaluated by the TSC Permit Engineer to determine if the work will be accepted. It may be required that the permittee return after April 15 to correct any problems from the winter season.

**Standard Conditions for Maintaining
Temporary Traffic Control Devices
For Permitted Activities**

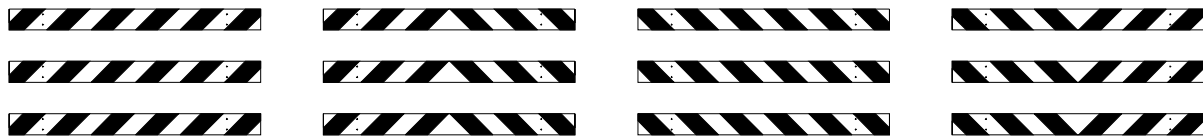
1. All Temporary Traffic Control (TTC) Devices shall be as specified in the 2003 MDOT Standard Specifications for Construction, Part 6 of The 2005 Michigan Manual of Uniform Traffic Control Devices, and MDOT Standard Plan WZD-125-D. All devices placed in the MDOT right of way shall be compliant with NCHRP Report 350.
2. All sign faces shall be in good legible condition. Mesh signs are not allowed. Steel and wood “sawhorse” style type I and II barricades are not allowed. Informational, directional, detour, and other signs shall not be attached to type III barricades, but shall be placed on separate supports behind the type III barricade.
3. Sign spacing and taper lengths shall be as per Traffic and Safety Division Maintaining Traffic Typical No. M0020.
4. All signs shall have the proper number of sandbags, (4 minimum, one on each corner), placed on the bases as ballast, as per MDOT Standard Plan WZD-125-D.
5. When not necessary for current work conditions, any lane closure, shoulder closure, or traffic shift specified for the project, shall be taken down on a daily basis.
6. When signs are taken down, or not put into operation, they shall be disassembled, (legs separated from bases), and laid flat on the ground, with legs pointed downstream from traffic, outside the shoulder area of the roadway.
7. When operations are complete the TTC Devices shall be removed from the right of way within 1 week, or as directed by the inspecting agency. If not done in a timely manner, MDOT may elect to have these items removed and bill the permittee for this work.
8. Non compliance with any of these conditions, or creating a dangerous situation as defined by MDOT, can result in issuance of a shut down order and possible revocation of permits.
9. In extreme cases of non-compliance, MDOT may elect to correct the TTC operation by use of an outside contractor. If this occurs, the permittee will be billed for all costs, plus administration fees, by MDOT. Individual Permit Performance Bonds may be used for compliance.



PERFORATED SQUARE STEEL TUBE OPTION



ANGLE IRON OPTION



BARRICADE RAIL SHEETING OPTIONS
TYPE III BARRICADES

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

NOT TO SCALE

File: T&S/Typ/Signs/WorkZones/wzd 125 d

Rev. 09/22/09 PJ



PREPARED BY
TRAFFIC AND SAFETY

DRAWN BY: ECH

CHECKED BY: MWB

ENGINEER OF DELIVERY

ENGINEER OF DEVELOPMENT

(SPECIAL DETAIL)

FHWA APPROVAL DATE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN FOR

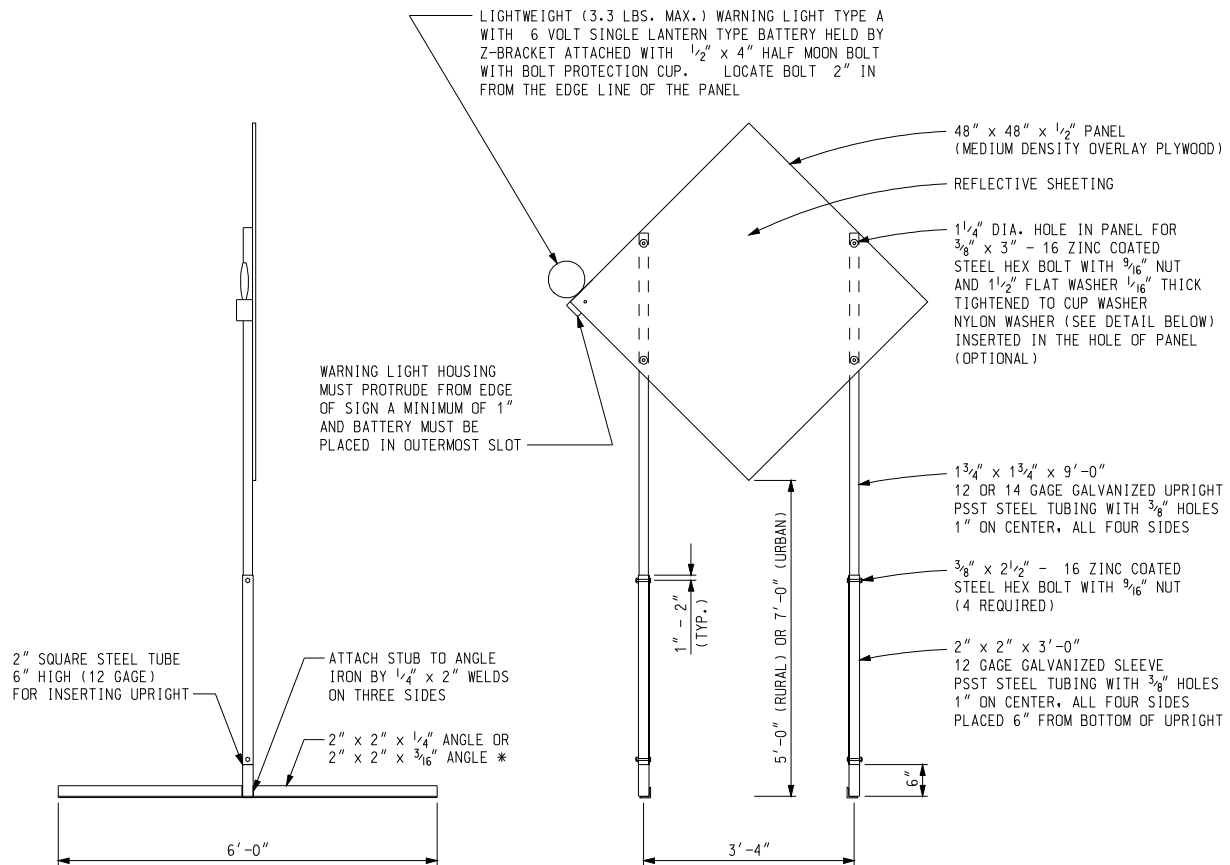
Temporary
Traffic Control Devices

9/22/09
PLAN DATE

WZD-125-E

SHEET
1 of 3

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



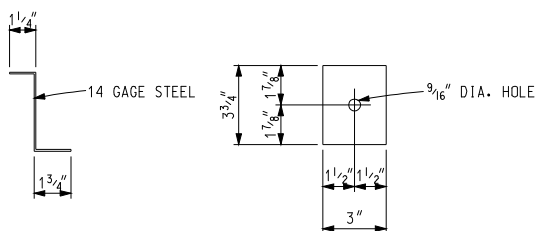
SIDE VIEW

FRONT ELEVATION

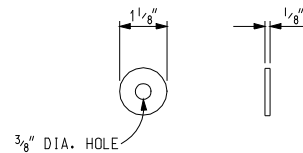
TEMPORARY SIGN SUPPORT

(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

* SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END.
UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.



Z-BRACKET DETAIL



OPTIONAL NYLON WASHER

Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN

(SPECIAL DETAIL)
FHWA APPROVAL DATE

9/22/09
PLAN DATE

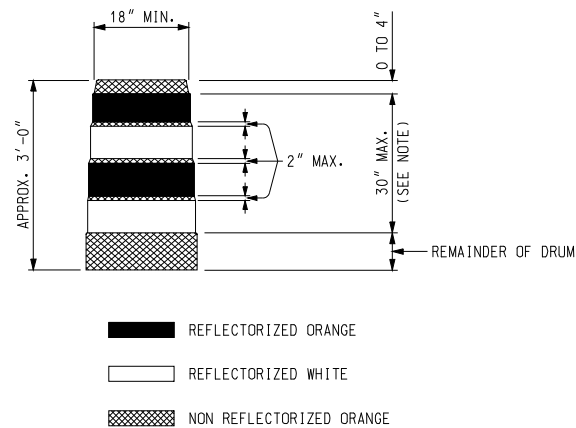
WZD-125-E

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2 of 3

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.

- PLASTIC DRUM
- ▲ ▲ ▲ PROPOSED TYPE III BARRICADE
- △ △ △ EXISTING TYPE III BARRICADE

SYMBOLS TO BE USED ON PLANS



NOTE:
 DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

PLASTIC DRUM

- NOTES:
- 2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARICADE.
- WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT WHEN THEY ARE USED ON TYPE III BARRICADES.
- SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.
- SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS DELIVERY STANDARD PLAN	(SPECIAL DETAIL) FHWA APPROVAL DATE	9/22/09	WZD-125-E	SHEET 3 of 3
File: T&S/Typ/Signs/WorkZones/wzd 125 d	Rev. 09/22/09 PJ	PLAN DATE		

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